THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. Apparatus for mounting on the end of a drill string having a rotatable distal end in a wellbore, the apparatus comprising:

a reamer, at least a portion of which has a rotatable abrasive reaming tube thereon;

a non-rotating lower lateral displacement means connected to a lower end of the reamer and operable to displace the reamer between a non-displaced position and a laterally displaced position; and

an upper lateral displacement means adapted for connection to the rotatable distal end of the drill string and connected to an upper end of the reamer for driveably rotating the abrasive reaming tube and for displacing the reamer between a non-displaced position and a laterally displaced position; and

a fluid passage through the upper lateral displacement means and the reamer for supplying drilling fluids from the drill string a downhole end of the abrasive reaming tube, and wherein

when the lower and upper lateral displacement means are in the non-displaced position the reamer and abrasive reaming tube are aligned with the wellbore; and

when the lower and upper lateral displacement means are actuated to the laterally displaced position, the reamer and abrasive reaming tube are positioned substantially parallel to the wellbore for milling a window in a sidewall of the wellbore.

2. The apparatus of claim 1 wherein

the abrasive reaming tube has a bore and the reamer further comprises a non-rotating mandrel extending along the bore of the abrasive reaming tube, the abrasive reaming tube being rotatable about the mandrel, and

the lower lateral displacement means is connected to a lower end of the mandrel.

3. The apparatus of claim 2 wherein the upper lateral displacement means further comprises:

a driveshaft adapted for pivoting connection to the rotatable distal end of the drill string and pivotally and driveably connected to the rotatable abrasive reaming tube; and

a non-rotating housing connected to an upper end of the mandrel adjacent the driveshaft and engagable therewith for aligning the mandrel with the driveshaft in the non-displaced position and misaligning the mandrel from the driveshaft in the displaced position.

4. The apparatus of claim 3 wherein:

the drive shaft further comprises a lower universal joint having a spindle projecting therefrom for relative rotational coupling with the non-rotational housing, and

the non-rotating housing further comprises a ramp for engaging the spindle wherein relative axial movement of the spindle and the housing laterally

displaces the spindle for alignment or misalignment of the driveshaft and the mandrel.

5. The apparatus of claim 4 wherein the housing is hydraulically actuable between an uphole and a downhole position for moving the ramp and displacing the spindle.

6. The apparatus of claim 4 wherein the bottom universal joint is axially movable between an uphole and a downhole position relative to the ramp for displacing the spindle.

7. The apparatus of claim 6 further comprising a splined connection between the lower universal joint and the abrasive reaming tube for enabling rotatable drivable connection and axial movement therebetween.

8. The apparatus of claim 2 wherein the non-rotating mandrel further comprises:

a core-receiving passage for retaining a core therein; and

a fluid bypass conduit, wherein

when the reamer is in the displaced position and when the drill string moves downhole in the wellbore, the core is received into the core-receiving passage and drilling fluids are supplied to the downhole end of the abrasive reaming tube through the fluid bypass conduit.

9. The apparatus of claim 8 wherein the abrasive reaming tube further comprises a core head positioned at a lower end of the abrasive reaming tube for cutting the core when rotated, the core being received into the core-receiving passage as the reamer is moved downhole.

10. The apparatus of claim 9 wherein:

the core-receiving passage is crescent-shaped and the fluid passage is positioned axially within the mandrel; and

lateral displacement of the abrasive reaming tube is limited for cutting a crescent-shaped core, sized to be retained within the crescent-shaped core-receiving passage.

11. The apparatus of claim 8 further comprising a core retainer positioned adjacent a lower end of the core-receiving passage for retaining the core therein.

12. The apparatus of claim 11 wherein the core retainer is a finger biased between a non-engaged position for permitting receipt of the core thereby and into the core-receiving passage and an engaged position for restricting at least a portion of the core-receiving passage for retaining the core therein.

13. The apparatus of claim 2 wherein the lower lateral displacement means further comprises:

a lower section positioned in the wellbore; and

a link having

a first point of connection to an actuator in the lower section,

a second point of connection in the lower section about which the link pivots, and

a third point of connection to the lower end of the mandrel,

wherein when the actuator actuates the first point of connection, the link pivots about the second point of connection for laterally displacing the mandrel and the abrasive reaming tube.

14. The apparatus of claim 13 wherein the actuator is selected from the group comprising hydraulics, accumulator, electric motor, spring pressure and motor-driven linear actuator.

15. The apparatus of claim 13 wherein the link is actuated through relative movement of the drill string and the lower section

16. The apparatus of claim 15 further comprising an anchor for temporarily anchoring the lower section in the wellbore.

17. A method for milling a window in a wellbore comprising:

providing a tool having a non-rotating lower section and an upper section and a reamer connected therebetween, the tool being positionable in the wellbore and each of the upper and lower sections being actuable between a non-displaced position aligned in the wellbore and a laterally displaced position parallel and offset from the wellbore; and

positioning the tool in the wellbore;

actuating at least the lower section to displace a lower end of the reamer;

rotating an abrasive outer surface of the reamer to form a window in a sidewall of the wellbore;

manipulating the tool as necessary to lengthen the window and forming a parallel window substantially parallel to the wellbore; and

actuating at upper section to displace an upper end of the reamer into the parallel window so that the reamer is positioned substantially parallel to the wellbore.

18. The method of claim 17 wherein the reamer has a non-rotating mandrel extending therealong and having a core-receiving passage therein and wherein the rotating abrasive outer surface further comprises a coring head, the method further comprising:

rotating the abrasive reaming tube about the mandrel;

lowering the tool downhole from the window and into a zone of interest below the window to cut a crescent-shaped core from the sidewall of the wellbore; and

receiving the crescent-shaped core into the mandrel's core-receiving passage.

19. The method of claim 17 wherein the tool manipulating step further comprises lowering the tool for elongating the substantially parallel window.

20 The method of claim 17 wherein the tool manipulating step further comprises lifting and lowering the tool uphole and downhole for backreaming and elongating the substantially parallel window.

21. The method of claim 17 wherein a lower end of the non-rotating mandrel is connected to the lower section, and wherein actuating of at least the lower section of the reamer further comprises:

laterally displacing the lower end of the reamer relative to the lower section; and

orienting the upper end of the reamer upon laterally displacing the upper end of the reamer relative to the upper section for displacing the reamer into the parallel window.